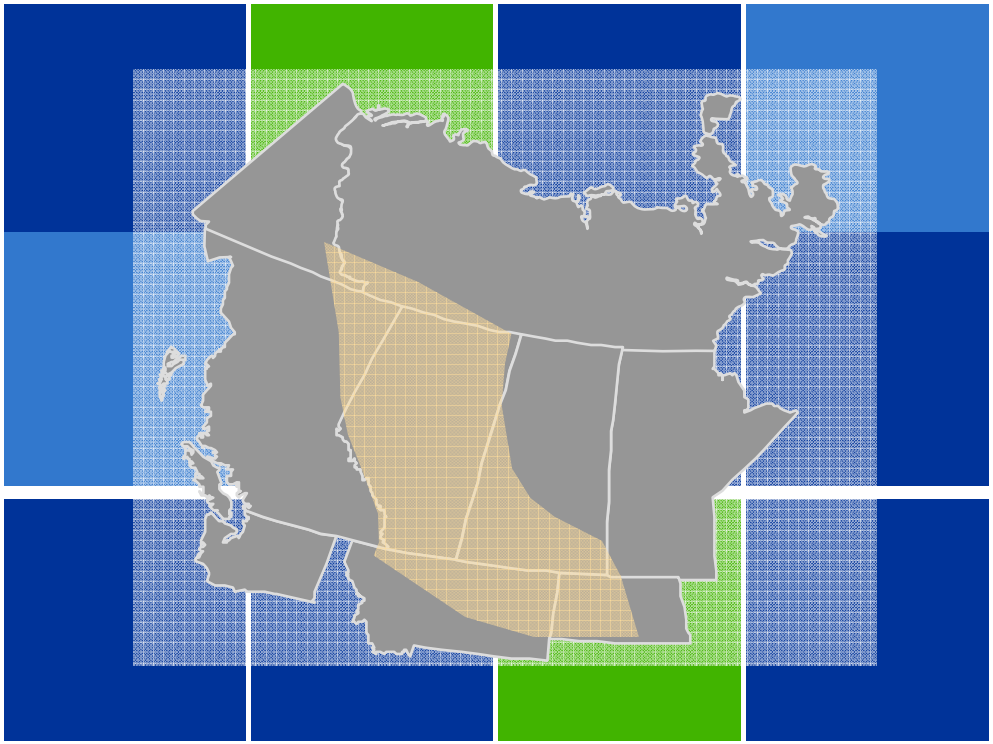

WC Demand Forecast Methodology

CEC Workshop December 16, 2004

Market Analysis

John Bridges

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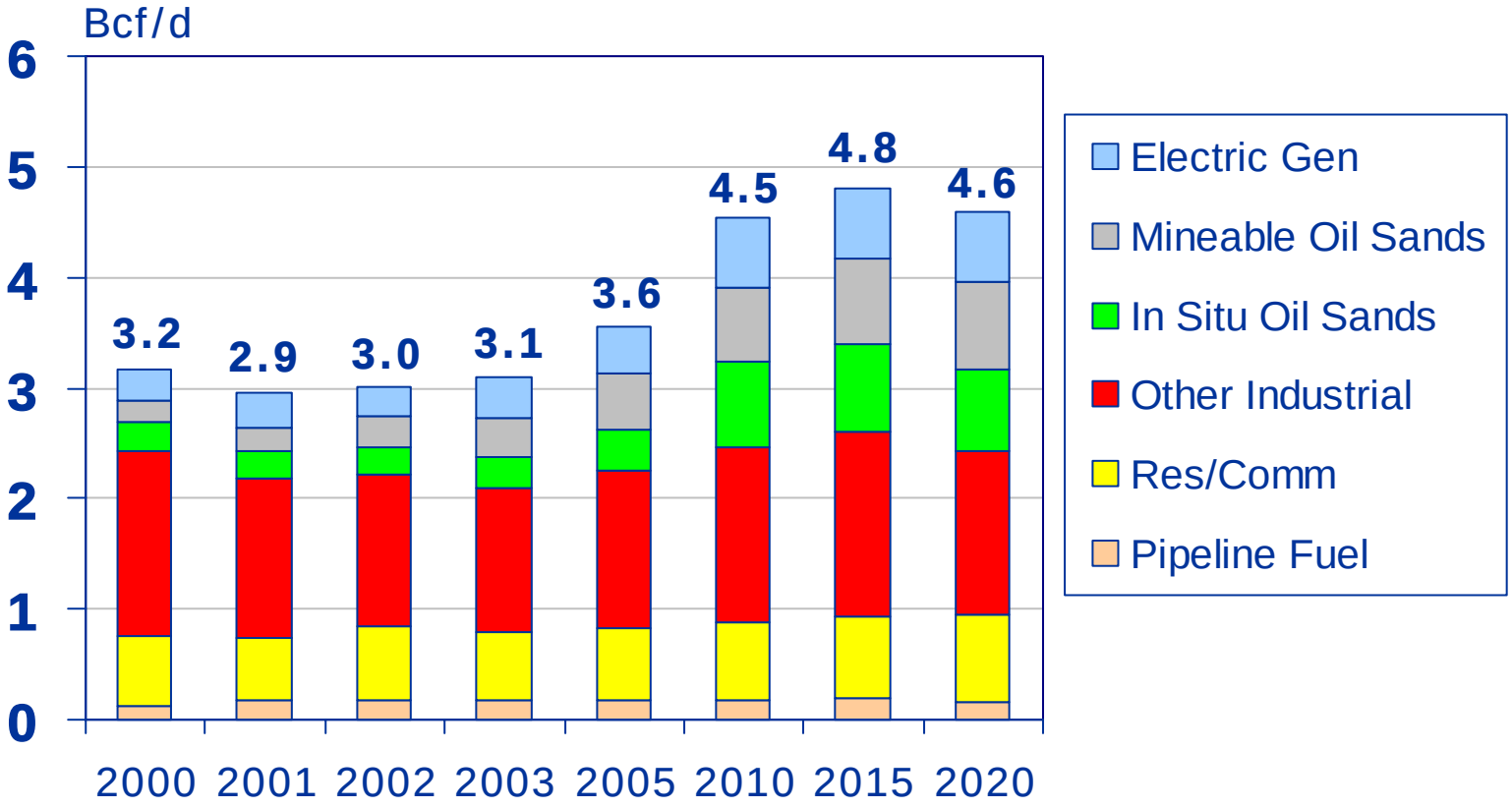
Alberta Gas Demand



- Alberta gas demand is forecast to increase 1.7 Bcf/d by 2015, led by Electric Generation and Oil Sands growth

AB Industrial Demand Forecast Process

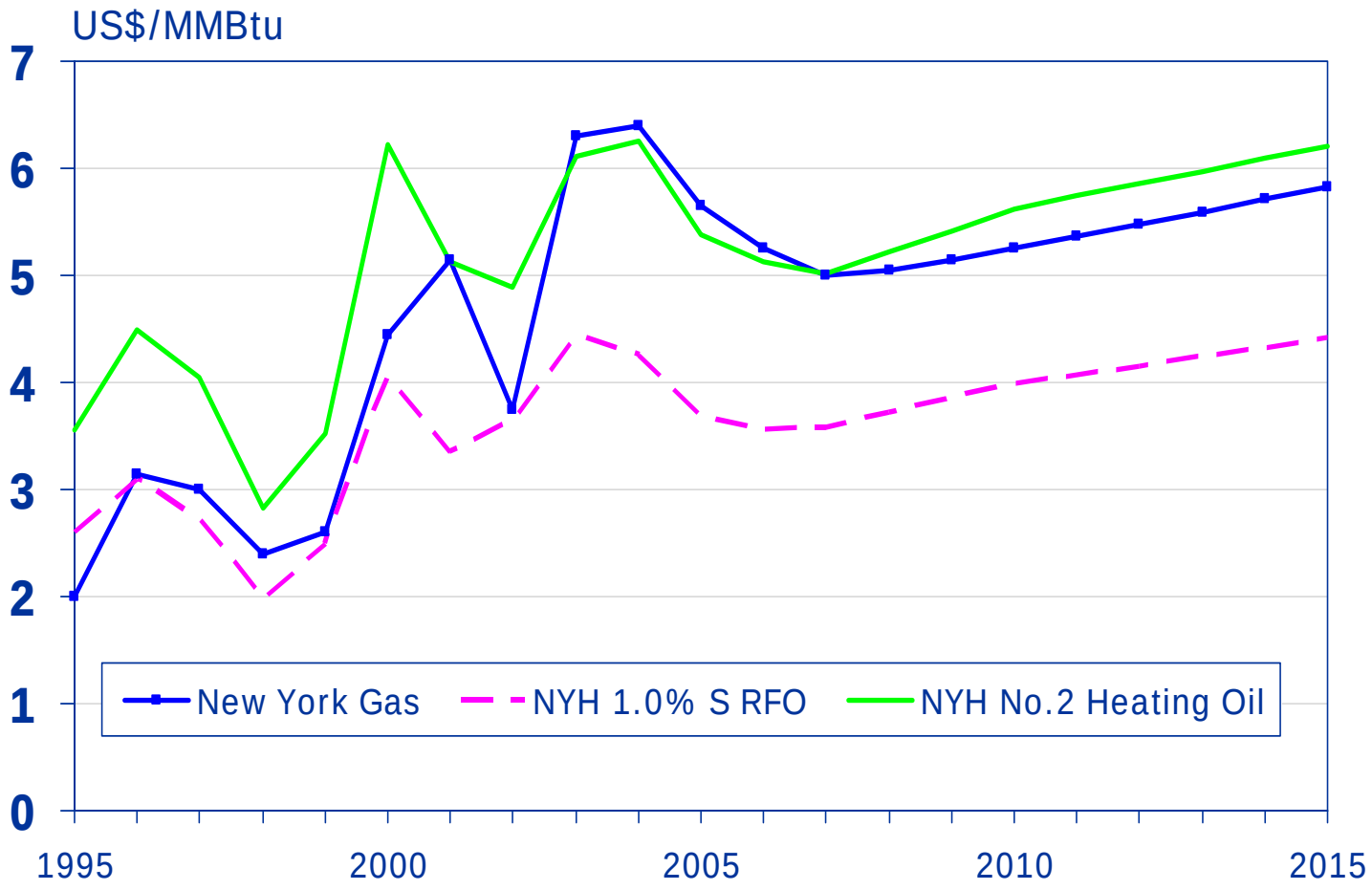
- Customers contacted re project plans and gas demand
- Oil Sands project timetable developed to reduce major construction overlap
- Production forecast developed
- TransCanada's power generation forecast merged with bitumen projects
- Gas intensity (mcf/barrel) for Oil Sands projects is reduced over time due to:
  - Gradual extraction improvements
  - Use of alternate energy sources
- Fertilizer demand reduced as business becomes less competitive with offshore
- Petrochemicals related to decision on Northern gas

Industrial Growth Constraints

Oil Sands

- Construction constraints leading to delays and cost over-runs, $55 billion required over next 10 years
  - Solutions: up front engineering, no overlap in projects, modular construction, improved rail links, flying in work force
- Heavy Oil Market Constraints, present markets saturated
  - Solutions: reverse and build new pipelines, access new markets (e.g. California, Far East), new coking capacity
- Energy Costs, will gas be more expensive than oil?
  - Solutions: reduce gas intensity, improve extraction, improve processing, use other forms of energy
  - Long term gas price is related to oil products; oil sands projects benefit from higher oil (and gas) prices

Comparison of New York Market Prices
Current $/MMBtu – Base Case



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Industrial Growth Constraints (continued)

Petrochemical/Fertilizer

- Energy Costs, will gas be more expensive than products?
  - Nova Chemicals in top quartile of productivity, size is factor
  - Profitability based on margin of polyethylene to natural gas; margin strengthens with worldwide utilization of capacity
  - New sources of gas required for liquids extraction, which Northern gas would provide
- Fertilizer, domestic versus offshore based industry?
  - Agrium, Canadian Fertilizers produce ammonia based fertilizers close to land-locked markets
  - Cost is an issue, forecast gradual decline with higher prices

Electric Generation

1999-2004 Period

- Shift to natural gas, 3000 MW added, now 42% share
  - Lower emissions than coal
  - Lower capital cost to build
  - Cogen efficiency with oil sands and petchem
  - Export transmission constraints prevents full potential

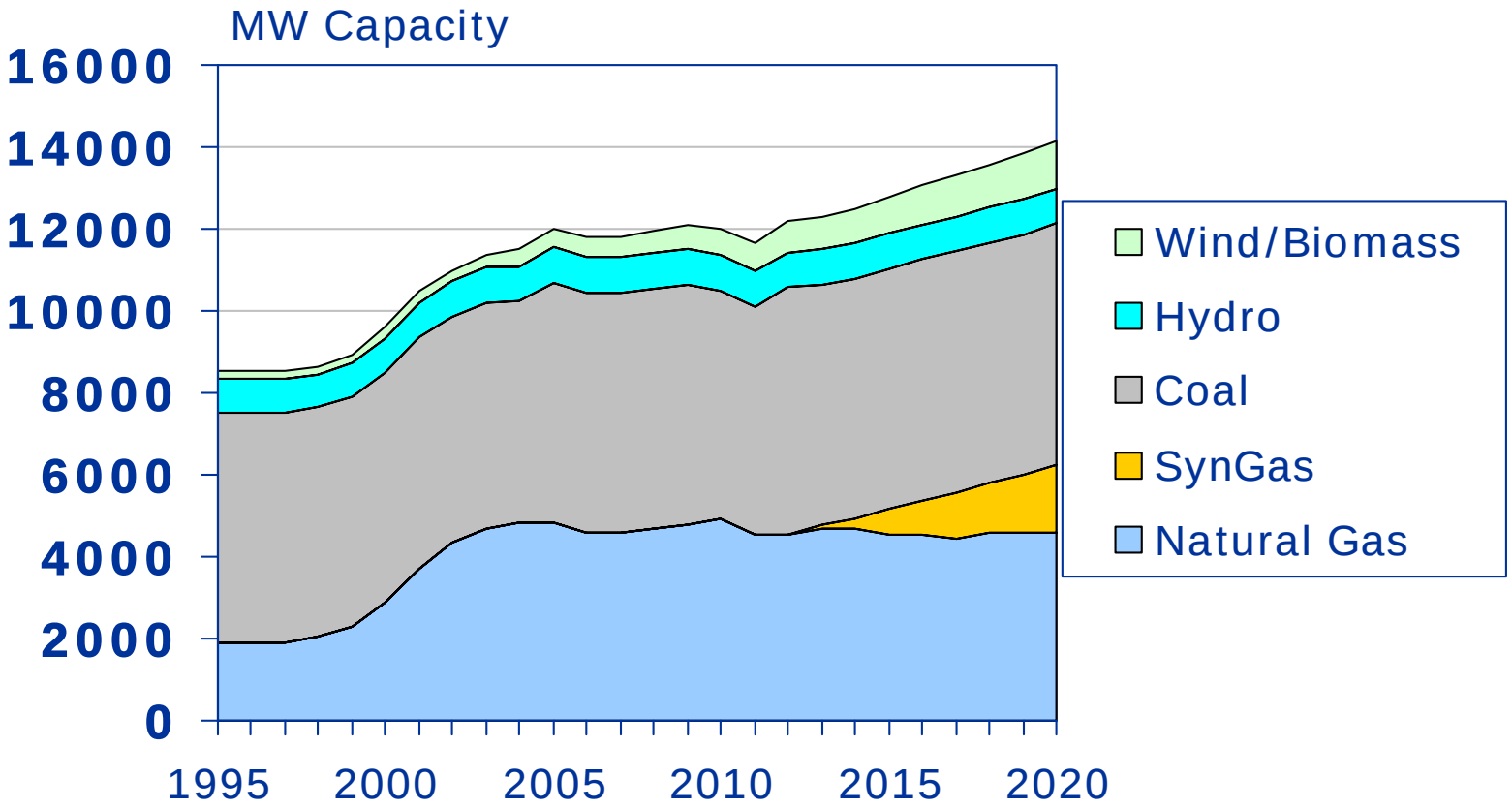
2005-2010 Period

- New natural gas and coal plants, retirements

2011-2020 Period

- Shift to Renewables and Syngas
  - Good potential for wind, rapid growth
  - Syngas produced from bitumen, coke, coal which Alberta has in abundance

Alberta Electric Gen by Resource Type (Net of Retirements)



- New Wind and SynGas projects are expected to take place of natural gas new builds in high cost environment

Other Assumptions

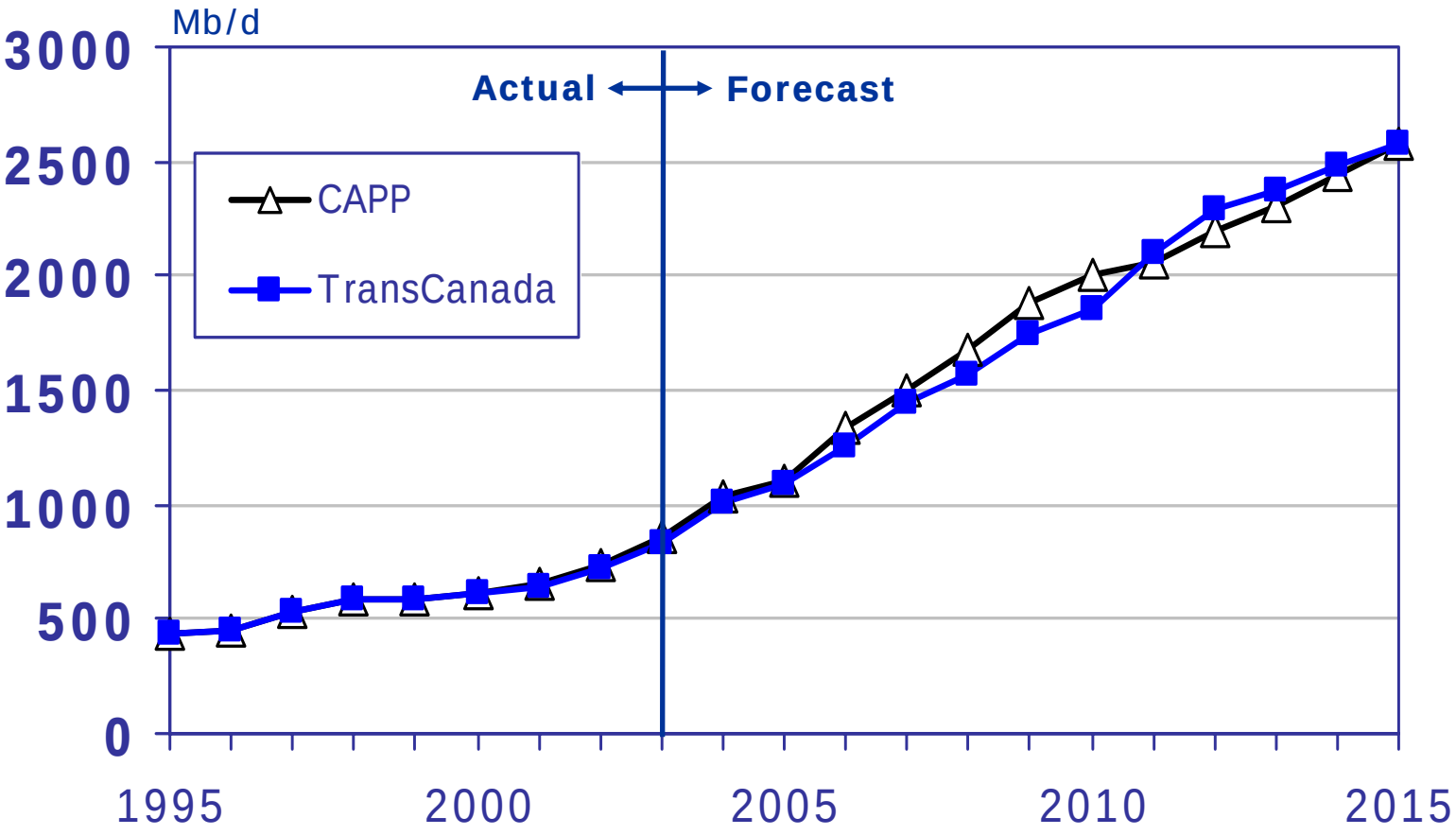
Industrial Manufacturing

- Manufacturing activity related to economic growth
  - GDP Growth in Alberta one of the fastest in Canada
  - Related to oil sands and spin off effects
  - Advantages of locating in Alberta

Core Market

- Population growth
  - Long term population growth 2.5% pa
  - Residential efficiency gains reduces demand growth to 1%
  - Commercial demand growing faster than residential

Oil Sands Production Forecasts



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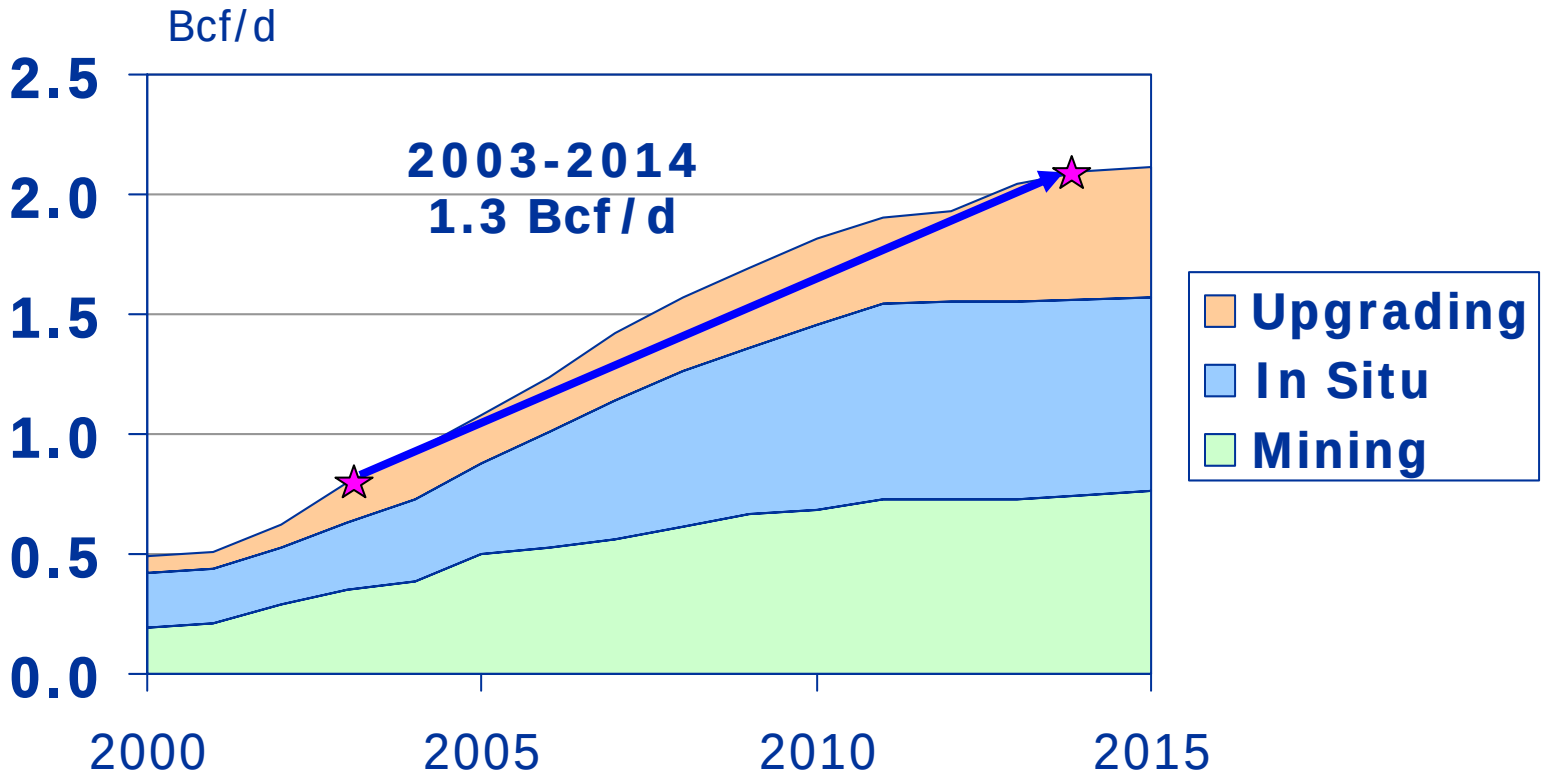
Oil Sands plus Upgrading Demand



- Total Oil Sands demand including upgrading is forecast to increase by 1.3 Bcf/d to 2.1 Bcf/d

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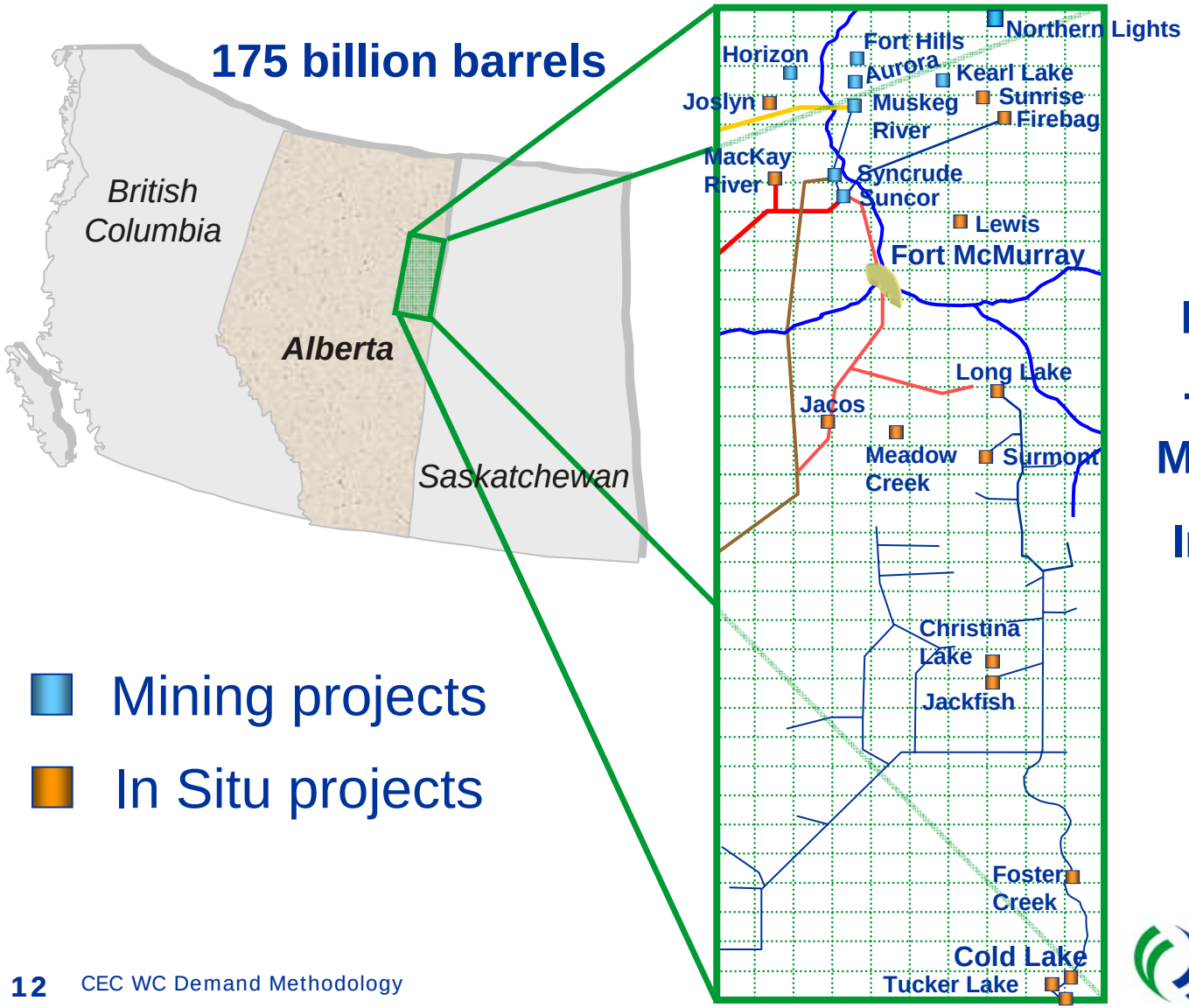
Alberta Oil Sands



Established Reserves

Mineable 32 B

In Situ 143 B

- Mining projects
- In Situ projects

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Oil Sands

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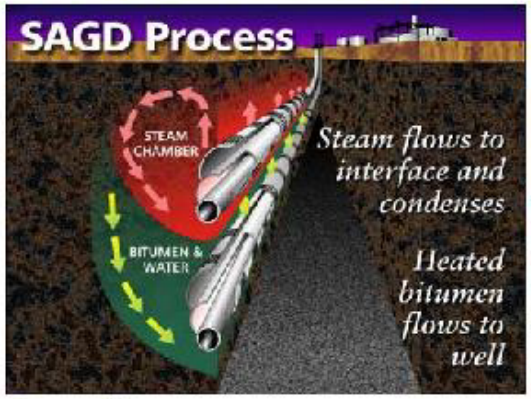
Oil Sands Project Types

In Situ Production



Source: Suncor

Bitumen Blends

Heavy Crude Refineries

Mining Production

Source: Syncrude

Upgrader

SCO

Source: Petro-Canada

Integrated Mine and Upgrader

Source: Suncor

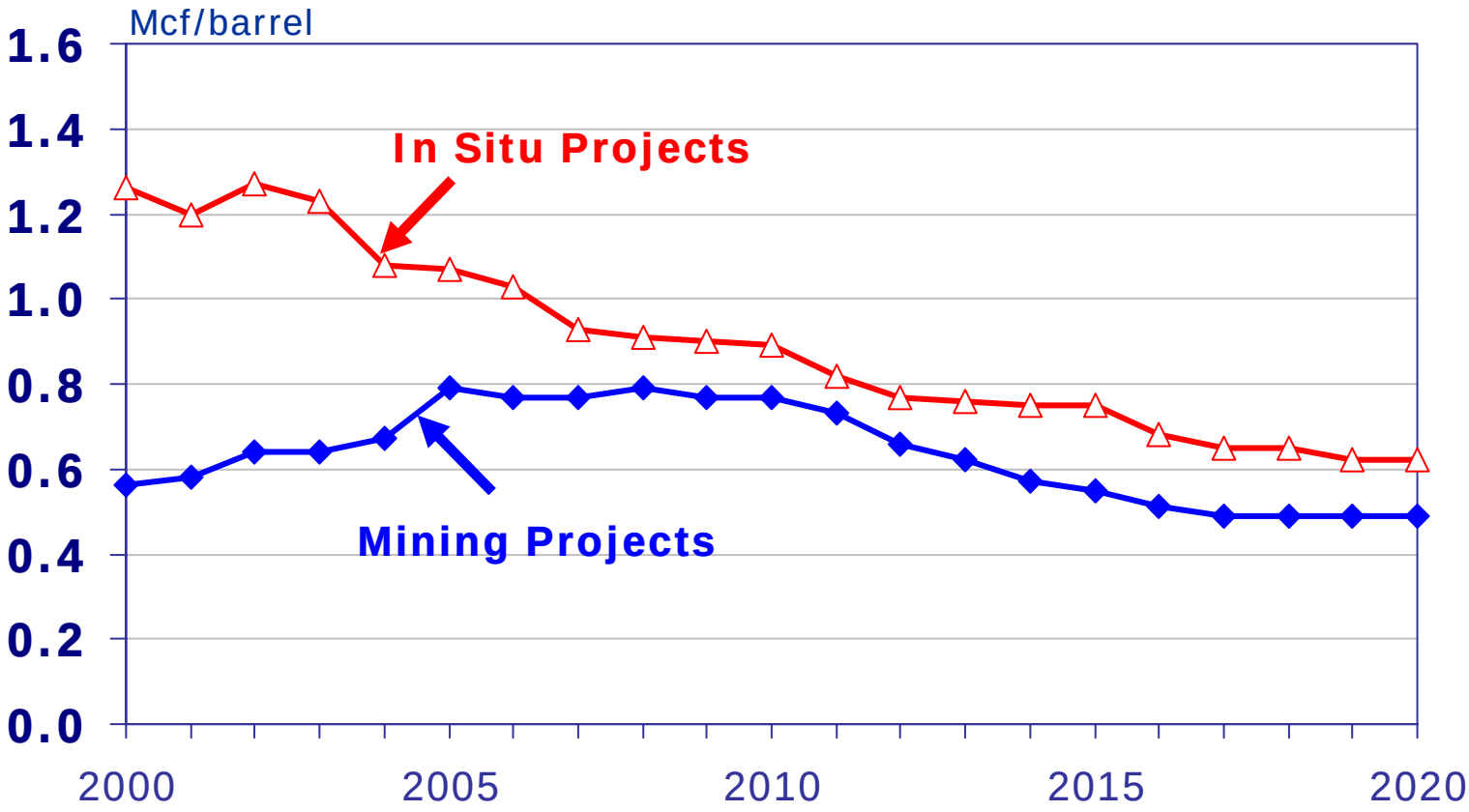
SCO

Conventional Light Crude Refineries

Impact of Technology

- Rising gas price forecast: industry focusing on using less natural gas and developing alternate energy.
- Nexen/OPTI Long Lake integrated SAGD project using solvent deasphaltene bitumen gasification.
- Technological change is expected in new generation of projects post 2010 for extraction and processing
- Many possible methods, but two promising ones:
  - Bitumen gasification, associated with In Situ projects
  - Coke gasification, associated with mining/upgrading
- Uncertainty around timing and extent of gasification.
- Application of bitumen and/or coke gasification results in demand leveling out post 2013.

Oil Sands Projects Gas Intensity



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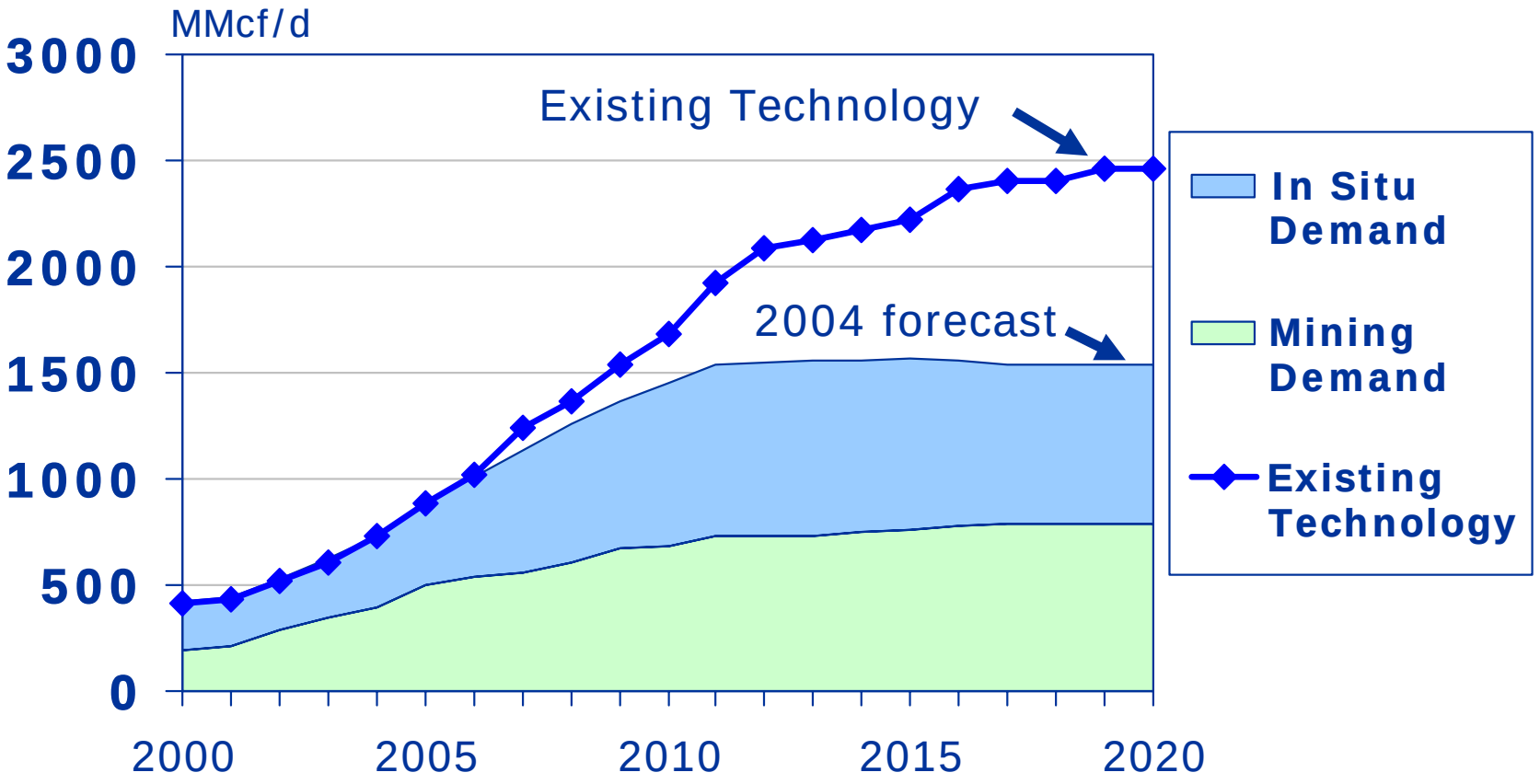
Oil Sands Gas Demand



- Using existing technology, demand is forecast to increase to 2.5 Bcf/d; with new only 1.5 Bcf/d

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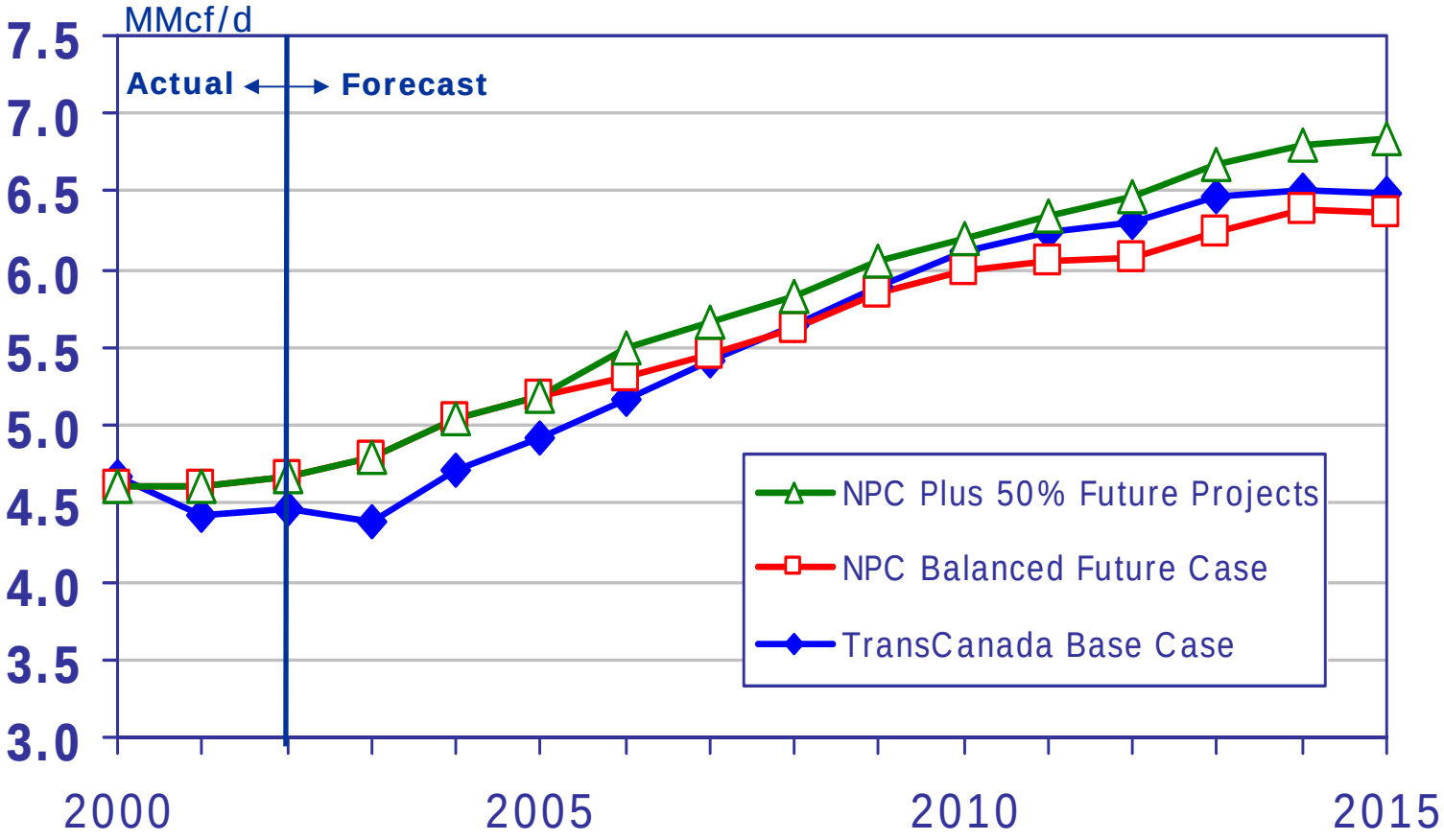
Western Canada Gas Demand Forecasts



Sources: NPC, TransCanada

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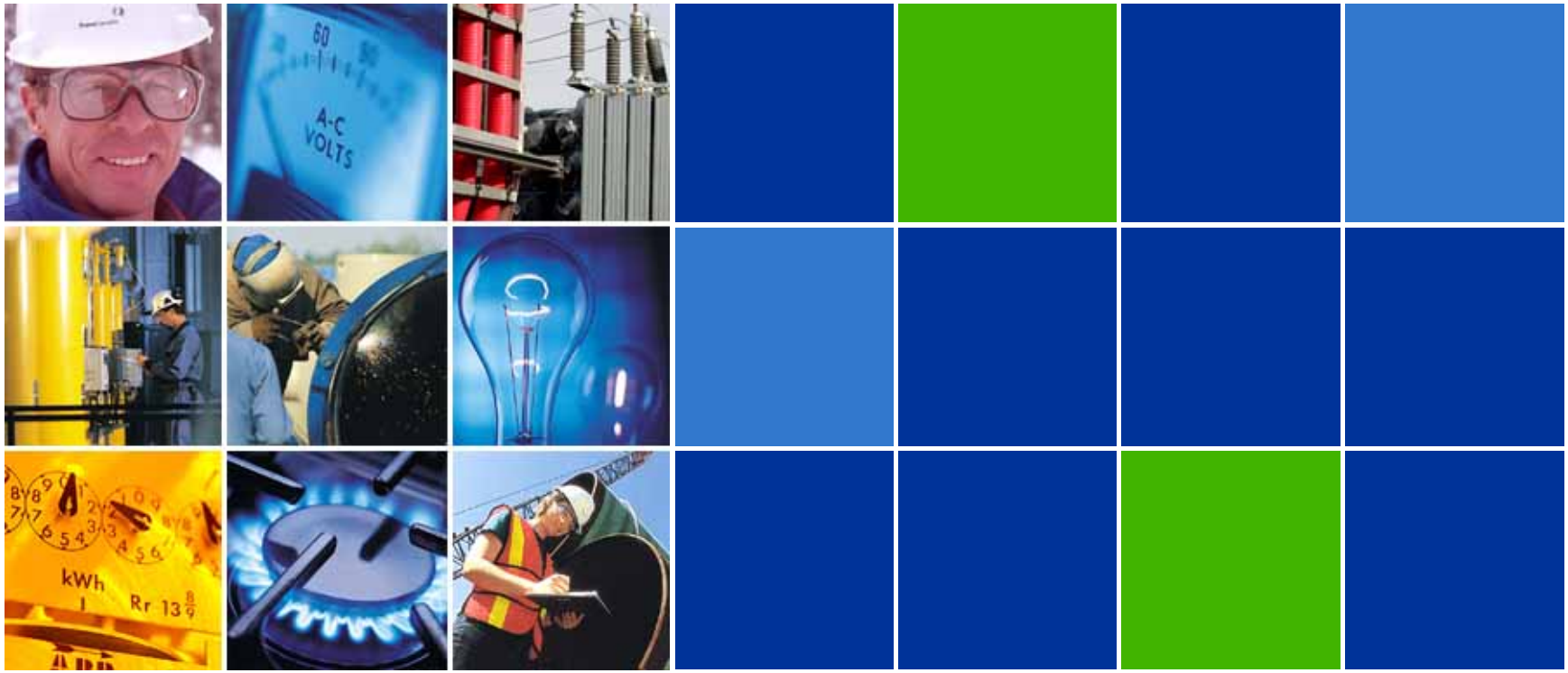

Thank you

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